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FLOODPLAIN MANAGEMENT RECONNAISSANCE STUDY REPORT

SYCAMORE DEKALB COUNTY



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CITY OF SYCAMORE

MAY 28 1987

DEKALB COUNTY, ILLINOIS

FLOODPLAIN MANAGEMENT

RECONNAISSANCE STUDY

Prepared by

UNITED STATES

Department of Agriculture

Soil Conservation Service

Champaign, Illinois

In cooperation with

STATE OF ILLINOIS

Department of Transportation

Division of Water Resources

October 1985

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CITY OF SYCAMORE
RECONNAISSANCE STUDY

INTRODUCTION

Use of floodprone areas can be a severe problem in Illinois. Urbanization and floodplain encroachment are increasing the severity of this problem. Over 800 communities in Illinois have been identified as having flooding problems.

The Illinois Division of Water Resources (DWR) is the responsible state agency for urban flood control and for setting priorities of flood studies within urban areas. The Soil Conservation Service is providing assistance to the Division of Water Resources in setting these priorities. A joint coordination agreement was executed between the Division of Water Resources, State of Illinois, and the USDA, Soil Conservation Service on April 30, 1976 and revised in December 1978 to furnish technical assistance in carrying out Flood Hazard Studies. These studies are carried out in accordance with Federal Level Recommendation 3 of "A Unified National Program for Flood Plain Management," and under Section 6 of Public Law 83-566. A plan of study was executed in October 1984 for reconnaissance studies for 9 Illinois communities. These reconnaissance studies will utilize existing floodplain information, historical high water profiles, and the 100 year floodplain from flood insurance studies when available. Average annual damages are estimated for the structures within the floodplain.

This study was conducted and the report provided for the purposes to: 1) evaluate needs for additional future studies, 2) estimate average annual damages, 3) provide an updated estimate of the 100 year floodplain and map, and 4) provide guidance and recommendations to the community for improved floodplain management.

STUDY AREA DESCRIPTION

The City of Sycamore is located in DeKalb County, approximately 6 miles northeast of DeKalb. The population of Sycamore is 9,219, according to the 1980 census.

Transportation facilities within the Sycamore area consist of the Chicago and Northwestern Railroad, and Illinois State Routes #23 and #64. Illinois toll roads are located to the north (90), and the south (5) of the community. Many other state routes and United States routes are located within a short distance of Sycamore.

The main floodwater problems to the City of Sycamore are caused by the South and East Branches of the Kishwaukee River, and an unnamed tributary to the East Branch of the Kishwaukee River. The East Branch in turn outlets into the South Branch of the Kishwaukee River. The South Branch of the Kishwaukee River has a drainage area of 112 square miles, where the East Branch joins the South Branch. The East Branch Kishwaukee River at this location has a drainage area of 126 square miles. The unnamed tributary has a drainage area of 1.8 square miles, where it outlets into the East Branch of the Kishwaukee River. The drainage is in the Mississippi River Basin, hydrologic unit #07090006, East Branch of the South Branch Kishwaukee River sub-watershed #070.

In general, the watershed is level to nearly level cultivated cropland. There are some relatively small areas of 4 to 7 percent slopes, but most of the drainage area is prime farmland that has only gently rolling slopes. The main rotation consists of corn and soybeans, with a few scattered small grain and legume fields still in the area. A majority of the fence rows have been eliminated, since the production of livestock has become a minor source of income to the farmers in the area. Small wooded areas are located throughout the drainage area.

Annual precipitation is normally about 35 inches, but ranges from 21 inches to about 50 inches. Average snowfall is approximately 29 inches.

Most of the watershed is rural in nature, with only the urban areas and the areas along the creeks and ditches subject to flooding. Since Sycamore and DeKalb County both enforce their building ordinances, new development will be free from flood damages.

There are four major soil associations in the watershed. The largest is the Saybrook, Drummer, Octagon association. They range from well drained to poorly drained, sloping to nearly level soils that formed in silty material with underlying loam glacial till.

The next largest group is the Drummer, Elburn, Batavia association. These range from poorly drained to well drained, nearly level to sloping soils that formed in silty material and underlying outwash, stratified water deposited silts, or water-worked loam drift.

The third largest group is the Drummer, Flanagan, Catlin association. They range from poorly drained to well drained, nearly level to sloping soils that formed in silty material and the underlying loam glacial till. The last group, found along the major drainageways, is the Sawmill, Camden, Harvard association. They are poorly drained, nearly level soils that formed in clay loam and silty clay loam alluvium on bottomlands and well drained and moderately well drained, on sloping to nearly level soils that formed in silty material and the underlying outwash material. These are found on terraces and uplands.

The soils information is from the Soil Survey of DeKalb County, issued in May of 1978.

NATURAL VALUES

The City of Sycamore is located in an area that is mainly agricultural with very few livestock remaining on the farms. Row crop fields are fairly large in size, with a very small amount of legumes and small grains in the crop rotation. The South Branch Kishwaukee River and the East Branch Kishwaukee River are still mostly tree lined providing a significant amount of varying quality riparian habitat as well as important travel routes for wildlife.

As stated before, several small areas of timber are also located throughout the watershed. These areas, along with the existing ditches, support a wide range of plant and animal species, which generally make the area a pleasant place for people to live, work and play.

FLOOD PROBLEMS

Flooding along the unnamed tributary is generally the result of a local heavy rainfall and could occur during any part of the year. Since the flooding is due to heavy local rainfalls over a relatively small watershed, flooding is generally of short durations.

Flooding associated with the South Branch and East Branch of the Kishwaukee River is different because of the fairly large drainage areas. Snow melt and ice jams could affect these areas and cause major problems along these streams.

Flooding in Sycamore associated with the South Branch of the Kishwaukee River is limited to a small area of Edgebrook Trailer Court. Most of the damages are to small storage sheds, garages, streets, and lawns. The trailers are located high enough off of the ground to escape most damages, but water will surround their properties, causing some problems from wetness to the bottoms of the units.

The unnamed tributary that flows through the southeast part of the city causes basement, lawn and street damages in the Perry Court, Parkside Drive and Parkmoor Court areas. Also, some problems are evident at the south end of Commercial Street.

The East Branch of the Kishwaukee River affects a much larger area than either the unnamed tributary or the South Branch of the Kishwaukee River, as shown on the floodplain map. Included in this area is the city park and the Sycamore Golf Course which lost 8 greens from the July 1983 flood and experiences loss of revenue during flood flows. There are several areas outside of the city limits that sustain damages, including the Evergreen Trailer Park, Sheahan Equipment Company and Strans Garden Shop.

The city does have a sewage treatment plant that has had some problems during intense rainfalls. Sewer surcharge has been a problem for homeowners as well as the city. The plant is located out of the 100 year floodplain.

The city uses deep wells for its water supply. All existing wells are of an elevation that is above the 100 year floodplain and at present, are quite adequate.

Ponding does not seem to be a problem to the City of Sycamore. Sump pumps are used by home owners to keep basements as dry as possible.

Some isolated septic systems remain in Sycamore. There are also some downspouts from rooftops that are connected to the sanitary sewer system.

PROBLEM SUMMARY

Estimated average annual damages from floodwaters caused by the South Branch of the Kishwaukee River are as listed below:

<u>Number of</u> <u>Trailers</u>	<u>Number of</u> <u>Garages & Sheds</u>	<u>Total</u> <u>Value</u>	<u>Average</u> <u>Annual Damages</u>
10	78	\$244,000	\$2,300

Street damages due to floodwaters =	700
Lawn damages due to floodwaters =	1,500
Agricultural flooding (120 acres) =	<u>3,000</u>
Average Annual Damages =	\$7,500

Flood damages start at the 10 year frequency storm.

Estimated average annual damages from floodwaters and ponding caused by the unnamed tributary are as listed below:

<u>Number of</u> <u>Homes</u>	<u>Number of</u> <u>Garages & Sheds</u>	<u>Total</u> <u>Value</u>	<u>Average</u> <u>Annual Damages</u>
8	4	\$356,000	\$3,500

Additional damages from flood related wetness:

Approximately 25 wet basements	1,500
Street damages =	1,500

Yard damages =	2,750
Agricultural flooding (30 acres) =	<u>750</u>
Average Annual Damages =	\$10,000

Flood damages start at the 10 year frequency storm. According to the cities survey, the May and July flooding in 1983 had reported damages of over \$50,000 in this small drainage area. They received a 50 year frequency storm in May, followed by a 100 year frequency rainfall in July, which caused many problems.

Estimated average annual damages from floodwaters caused by the East Branch of the Kishwaukee River are as listed below:

<u>Number of</u> <u>*Homes or Trailers</u>	<u>Number of</u> <u>Garages & Sheds</u>	<u>Total</u> <u>Value</u>	<u>Average</u> <u>Annual Damages</u>
145	81	\$1,962,000	\$16,650

Street damages due to flooding =	1,000
Lawn damages due to flooding =	2,000
Damage to Golf Course (100 Ac + lost revenue) =	23,250
Damage to City Park (grass damage and cleanup) =	10,000
Agricultural flooding (420 acres) =	<u>12,600</u>
Average Annual Damages =	\$65,500

Flood damages start at the 5 year frequency storm.

* Above information on trailer court is from the Corps of Engineers 1981 Reconnaissance Report.

Total estimated average annual damages for the City of Sycamore from the	
South Branch =	\$ 7,500
the unnamed Tributary =	10,000
the East Branch =	<u>65,500</u>
TOTAL =	\$83,000

EXISTING FLOODPLAIN MANAGEMENT

Sycamore converted to the regular phase of the National Flood Insurance Program in January 1984. Therefore, home and business owners may purchase flood insurance. The City of Sycamore has zoning ordinances in effect and building permits are required. DeKalb County also has zoning ordinances and requires building permits in the area outside of the city limits of Sycamore.

RECOMMENDATIONS

Sycamore and the immediate area around it has had several studies completed since 1971. These include the 1971 Floodplain Information Report, South Branch Kishwaukee River, DeKalb County, Illinois and the Flood Insurance Study, City of Sycamore, Illinois. The Corps of Engineers published a 1981 Reconnaissance Report for the South Branch Kishwaukee River near Sycamore, DeKalb County. The Corps of Engineers also completed a Reconnaissance Report for Sycamore in April of 1984. That study was done for the unnamed tributary and because the tributary's watershed size was too small to be within the Corps' study capability, based on their current regulations, the study was terminated. Several general recommendations to alleviate the problems along the unnamed tributary were given, but no benefits or costs were developed.

The flooding caused by the unnamed tributary could be helped by following the recommendations that the Corps of Engineers stated in their 1984 study. This would require a retention pond, with controlled outlet, to be constructed in the area south of Bethany Road, to keep floodwaters from running through Perry Court.

The open ditch that runs for 100 feet along Perry Court should be closed by extending the existing storm sewer to the corner. This will eliminate the problem with small children playing in the water after the rains, where possible loss of life could occur.

The Corps of Engineers in their 1981 Reconnaissance Report gave recommendations for the East Branch of the South Branch Kishwaukee River flooding. These include the moving of Evergreen Trailer Park to an area above the 100 year floodplain as the most practical recommendation. Also, river snagging and clearing above Illinois Route 64, would benefit the golf course and park district.

Flooding along the South Branch Kishwaukee River at the Edgebrook Trailer Park can be helped by raising the low sheds or relocating the lower part of the trailer court.

The isolated septic systems that remain in Sycamore should all be connected to the sanitary sewer system as soon as possible, without putting anyone into a financial hardship. Also, all down spouts from roof tops that are connected to the sanitary sewer system, should be disconnected as soon as possible.

Discharged water from sump pumps should be kept away from any low areas that may now exist. These discharged waters should also be kept out of the cities sanitary sewer system as is could overload the existing system and would cost the city because of increased treatment costs.

Homes that suffer from sanitary sewer backups, should install a backup valve to prevent this practice from happening to their homes.

The city should continue to participate in the National Flood Insurance Program. Both the city and the county should continue to regulate construction in the floodplain. Because of their strong enforcement codes, their flooding problems are considerably less than most areas that have grown as fast as Sycamore.

Because of the many studies that have been conducted in the area, the state may want to assign a low to medium priority for future detailed studies in the area of and around Sycamore.

INVESTIGATIONS AND ANALYSIS

No additional calculations, discharges, or profiles were made as a part of this study. The inventory of flooding and water problems is based on a field review and interviews with local citizens. The Flood Insurance Rate Map for Sycamore, and the Flood Hazard Boundary Map for the unincorporated areas of DeKalb County along with interviews with local citizens, was used to determine the 100-year floodplain. Aerial photographs were provided by DWR. Damages were based on property value estimates during the field review, and the application of damage factors. These factors came from previous detailed floodplain management studies.

RGS:jmm:WS9-5



VICINITY MAP
SYCAMORE
DEKALB CO., IL.
SCALE- 1" = 12 MILES

LEGEND

CORPORATE LIMITS

100 YEAR FLOODPLAIN

RESERVOIR



LIMIT OF MAPPING

EDGE BROOK TRAILER COURT

BETHANY

NOTE -


"THIS MAP WAS DEVELOPED FROM AVAILABLE HISTORIC DATA AND OTHER FIELD REVIEWED INFORMATION. NO DETAILED HYDROLOGIC OR HYDRAULIC ANALYSES WERE MADE."

SYCAMORE
DEKALB CO., IL.

 U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

A north arrow pointing upwards with the word "NORTH" written inside. Below it is a scale bar with markings for 400, 0, and 400, and the text "APPROXIMATE SCALE" below that.

Checked _____		Drawn _____		Designed _____	
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No. _____		Sheet _____		Drawing No. _____	
of _____		of _____		of _____	



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SYCAMORE
DEKALB CO., IL.



LEGEND
CORPORATE LIMITS
100' YEAR FLOODPLAIN
RESERVOIR

NOTE: "THIS MAP WAS DEVELOPED FROM AVAILABLE HISTORIC DATA AND OTHER FIELD REVIEWED INFORMATION. NO DETAILED HYDROLOGIC OR HYDRAULIC ANALYSES WERE MADE."

APPROXIMATE SCALE



SYCAMORE
DEKALB COUNTY, ILLINOIS
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Project	Area	Scale	Date
Area Survey	485		
Sheet			
Drawn			



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